

Listing and Amendments to the Claims

This listing of claims will replace all previous listings and amendments of claims in this Application:

1. (original) A method for establishing a signaling connection between a client terminal and a communications network, the method comprising the steps of:
 - establishing an authentication connection between the client terminal and the communications network;
 - transmitting an authentication message from the communications network to the client terminal;
 - transmitting set-up parameters from the communications network to the client terminal, the set-up parameters including information for establishing a signaling connection tunnel between the client terminal and the communications network for transferring control data;
 - establishing the control data signaling connection tunnel using the set-up parameters;
 - transmitting signaling information between the client terminal and the communications network via the control data signal connection tunnel; and
 - closing the authentication connection.
2. (original) The method according to claim 1, further comprising the step of transmitting from the client terminal to the communications network acknowledgement of receipt of the set-up parameters.
3. (original) The method according to claim 1, wherein the control data signal connection tunnel is a dedicated signaling tunnel.

4. (original) The method according to claim 1, wherein the client terminal is a mobile terminal and the communications network is a 3G network.

5. (original) The method according to claim 1, wherein the step of establishing an authentication connection between the client terminal and the communications network is performed by way of a path including a wireless network which complies with IEEE 802.11 standards.

6. (previously presented) The method according to claim 1, wherein the step of establishing an authentication connection between the client terminal and the communications network includes the steps of establishing extended authentication protocol over local area network and DIAMETER connections.

7. (previously presented) The method according to claim 1 wherein the control data signal connection tunnel is a general packet radio services (GPRS) tunneling protocol (GTP) tunnel, and the step of transmitting set-up parameters includes the step of transmitting at least one of an internet protocol address and a tunnel identification.

8. (previously presented) The method according to claim 7 wherein the step of transmitting set-up parameters includes the step of transmitting quality of service parameters.

9. (previously presented) The method according to claim 1 wherein the control data signaling connection tunnel is a dedicated general packet radio services tunneling protocol tunnel, and the step of transmitting set-up parameters includes the step of transmitting both an internet protocol address and a tunnel identification.

10. (withdrawn) A method for implementing communications, said method comprising the steps of:

providing a wireless local area network access point having protocol stacks;

initially establishing an extended authentication protocol/extended authentication protocol over local area network connection by way of said wireless local area network access point between a mobile terminal and a cellular system server for the flow of authentication and control information including parameters for a control data signaling connection tunnel;

following authentication by said server, closing said extended authentication protocol/extended authentication protocol over local area network connection and opening a corresponding control data signaling connection tunnel using said parameters.

11. (withdrawn) The method according to claim 10, wherein said step of establishing an extended authentication protocol/extended authentication protocol over local area network connection includes the step of transmitting parameters for a general packet radio services tunneling protocol tunnel; and

said step of opening a control data signaling connection tunnel includes the step of opening a general packet radio services tunneling protocol tunnel.

12. (withdrawn) The method according to claim 10, wherein said step of closing said extended authentication protocol/extended authentication protocol over local area network path is performed after said control data signaling connection tunnel is opened.

13. (withdrawn) The method according to claim 10, comprising the further step, following authentication by said server, of transmitting

authorization to said access point to pass user data for said mobile terminal.

14. (withdrawn) The method according to claim 13, wherein said step of transmitting authorization to said access point is performed using DIAMETER protocol.

15. (withdrawn) The method according to claim 10, further comprising the step, following said authentication by said server, of reporting to said mobile terminal the success of said authentication.

16. (withdrawn) The method according to claim 10, wherein said step of closing said extended authentication protocol/extended authentication protocol over local area network path is performed before said control data signaling connection tunnel is opened.

17. (withdrawn) The method according to claim 10, wherein said step of closing said extended authentication protocol/extended authentication protocol over local area network path is performed concurrently with opening of said control data signaling connection tunnel.

18. (original) A method for operating a client terminal to establish a control connection to a communications network, said method comprising the steps of:

from said client terminal, establishing an authentication connection between said client terminal and said communications network, and requesting authentication;

at said client terminal, receiving an authentication message from said communication network, said authentication message including set-up parameters defining a control data signaling connection tunnel between said client terminal and said communications network;

from said client terminal, setting up said control data signaling connection tunnel by use of said set-up parameters;

transmitting control information between said client terminal and said communications network via said control data signaling connection tunnel; and

closing said authentication connection.

19. (original) The method according to claim 18, wherein said step of closing said authentication connection is performed after said step of transmitting control information between said client terminal and said communications network via said control data signaling connection tunnel.

20. (original) The method according to claim 18, wherein said steps of (a) establishing an authentication connection and (b) transmitting control information are performed by way of a wireless access point.

21. (previously presented) A method for communicating signaling and control information between a mobile device and a communications network, said method comprising:

establishing a radio connection between said mobile device and said communications network;

receiving by said mobile device authentication from said communications network;

receiving by said mobile device a signaling request including parameters from said communications network;

establishing by said mobile device a tunnel with said communications network;

forwarding by said mobile device to said communications network acknowledgment of receipt of said parameters and an indication to said communications network that said tunnel has been established;

receiving by said mobile device an indication from said communications network of completion of authorization to communicate with said communications network through an access point;
terminating receipt of said authentication by said mobile device;
and
opening a connection through said established tunnel.

22. (previously presented) The method according to claim 21, wherein said communications network is a 3G network.

23. (currently amended) The method according to claim 21, wherein said authentication is received from a serving general packet radio service support node of said communications network.

24. (previously presented) The method according to claim 21, wherein said radio connection uses an extend authentication protocol or extended authentication protocol over local area network.

25. (previously presented) The method according to claim 21, wherein said tunnel is a general packet radio service tunnel.

26. (previously presented) The method according to claim 25, wherein communications through said tunnel is accomplished using a general packet radio service tunnel protocol.

27. (currently amended) A mobile device for exchanging information with a communications network, comprising:
means for establishing a radio connection between said mobile device and said communications network;
means for receiving by said mobile device authentication from said communications network;

means for receiving by said mobile device a signaling request including parameters from said communications network for establishing a signaling connection tunnel;

means for forwarding by said mobile device to said communications network acknowledgment of receipt of said parameters and an indication to said communications network that said tunnel has been established;

means for receiving by said mobile device an indication from said communications network of completion of authorization to communicate with said communications network through an access point;

means for closing said radio connection by said mobile device; and

means for opening a connection through said established tunnel.